



June 3, 2005

To: Sound Transit Board of Directors

From:  Joni Earl, Sound Transit Chief Executive Officer and  
David Dye, Urban Corridors Manager, WSDOT

Subject: HOV/BRT Freeway Interchange Costs

Recently Sound Transit staff reported that the costs to rebuild freeway interchanges had been revised, resulting in a \$2 billion decrease in the overall costs of an HOV/BRT scenario for the I-90 transit technology study. Because of numerous questions that have arisen since this disclosure, we are jointly writing this memorandum to address the frequently asked questions we have heard.

In December, 2004, WSDOT provided ST with their latest order of magnitude cost estimates for the freeway interchange modifications necessary to construct HOV connection ramps from freeway-to-freeway. These ramps would allow buses and carpools to go from one freeway to another, using the inside HOV lanes, without requiring weaving/merging across several lanes of general purpose traffic. The December figures were the following:

Northup interchange (405/520): over \$ 1,000 million

Factoria interchange (405/90):

-- GP	\$ 500 – 1000 million
-- HOV ramps	\$ 300 – 500 million

It should be noted, however, that WSDOT had not fully developed plans or costs for these two freeway-to-freeway interchanges as they were not expected to be funded for a number of years. ST, however, needed an estimate to plan their Phase 2 program. The above estimate of over \$1 Billion at the SR520/I405 interchange was based off of a 2002 estimate the Translake team developed for an earlier interchange concept. Although WSDOT had developed a newer interchange concept in 2003, no detailed costs had been completed.

The December 2004 memo from WSDOT did not state a reference year for the dollar figures above. ST assumed the costs were in 2004 dollars, inflated them to 2005 dollars (because all other cost figures in ST's work is

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stated in 2005 dollars), added appropriate markups and contingencies, and added these costs to the other improvements in the HOV/BRT scenario. The resulting total costs of the HOV/BRT scenario ranged from \$4.4 – 5.8 billion (2005 \$). This cost includes the provision of the seven feasible HOV ramp connections at the two freeway interchanges.

In April, the independent Expert Review Panel (ERP) appointed to oversee ST's work, questioned the provision of all seven feasible HOV ramp connections, and asked us to isolate the costs of just two HOV connections that directly mimic the movements of the light rail scenario. The two ramp connections are the northwest quadrant of the 405/90 interchange and the southeast quadrant of the 405/520 interchange. These movements directly correlate to a light rail scenario that provides connections between Seattle, Bellevue, and Overlake/Redmond.

In working to answer the ERP's question, WSDOT and ST discovered an error in how the December figures were handled. Specifically, we learned that the WSDOT numbers provided in December were in year-of-expenditure (YOE) dollars, not 2004 dollars. ST requested that WSDOT provide new figures, and in April WSDOT provided updated cost figures in both 2005 dollars and YOE dollars (assuming a 2012 midpoint of construction). By this point, the I-405 Team had already completed a detailed cost estimate for a portion of the SR520/I405 interchange work (in the SE quadrant) and used that to extrapolate an estimate for the entire interchange (see below). An updated, detailed estimate for the entire SR520/I405 interchange is not expected to be completed until later this year. The figures provided were:

Northup interchange (405/520):	\$1970 million (YOE)	\$1650 million (05 \$)
Factoria interchange (405/90):		
-- GP	\$ 180 million (YOE)	\$ 160 million (05\$)
-- HOV ramps	\$ 920 million (YOE)	\$ 770 million (05\$)

In comparing the December 04 and April 05 figures, it can be seen that the cost figures were different, reflecting the changes in the interchange concept at this very early stage of development.

Next, WSDOT and ST staff worked to isolate the costs of the two quadrants noted above (as requested by ERP). WSDOT provided construction sequencing information, noting that for structural reasons the interchange modifications for general purpose traffic needed to be done first, prior to the later construction of the HOV connections. Staff worked down the sequencing schedule just to the point of being able to build the two needed HOV connections. This resulted in the following costs:

Northup interchange (405/520):	\$ 1350 million (05\$)
Factoria interchange (405/90):	\$ 330 million (05\$)

Consistent with all other cost figures presented by ST in other work, ST then put a -5 to +30% range around these numbers, added them to other HOV/BRT costs in the scenario, resulting in a total capital cost estimate of \$2.5 – 3.5 billion (05\$).

This new total is approximately \$2 billion less than what was previously published. About half of the difference is explained by a change in scope – reducing the number of ramps from seven to two. The cost to build the remaining five HOV ramps is approximate \$1 billion and is noted in ST's reports. These five additional ramps are still part of the 405 project's Record of Decision and still on the drawing board to construct, but excluded from the ST cost figures to allow a direct comparison to the light rail scenario, as requested by the ERP. The other half of the difference is due to the combined effect of updated cost figures from WSDOT between December 04 and April 05, and the error in assumption about whether the numbers were stated in 04 dollars or year of expenditure dollars.

We hope this clarifies for the Board and the public why the ST numbers for HOV/BRT scenarios changed so dramatically. Please feel free to call either one of us if you have further questions.